the literature on both sides and then visited practically all the laboratories from the Mayos' at Rochester, Minnesota, to the eastern seaboard. He visited especially the Rockefeller Institute several times, also a number of European laboratories. He became thoroughly convinced (1) that the experiments were not cruel, (2) that the statements in the literature of the antivivisectionists were often garbled and utterly misleading, and (3) that the results to animals themselves as well as to human beings were of enormous benefit. Then he wrote the article, and Miss Lane, the editor of the *Companion,* bravely printed it.

The especial significance of *his* writing such an article lies in his nation-wide reputation as a lover of animals and their protector. He is the father of all the bird-refuges in the United States. His lectures on animals have been heard everywhere, and when *he* approves of experiments on animals every one knows that he has good reasons for so doing.

The fury of the antivivisectionists at once rose to fever heat. The New York Antivivisection Society through its president, Mrs. Belais, sent out an extraordinary appeal calling him "one Ernest Harold Baynes"—almost as if one should write "one Herbert Hoover"! In a paragraph all in capitals Mrs. Belais called on all lovers of animals to help crush Miss Lane financially not only by cancelling their own subscriptions but by urging all their friends to do the same—a nation-wide boycott. This extraordinary method will ensure a reaction in favor of Miss Lane because of its vindictive unfairness. It is not argument, it is persecution and is also illegal.

It behooves the friend of scientific research and *real* lovers of animals to support Miss Lane by expressing to her by mail their admiration of her courage, and by adding their own names to the list of her subscribers. Her address is 381 4th Ave., New York, and the cost of a year's subscription is only two dollars. She has received hundreds of letters from the A-Vs—many abusive. The November and succeeding issues will contain some interesting reading.

Mr. Baynes has also been attacked by mail and by cancellation of engagements. It is up to us to sustain so doughty a champion. He has given the antivivisectionists the hardest blow I have known in 40 years.

W. W. KEEN

QUOTATIONS

CHEMISTRY AND THE PUBLIC

IT is fitting that 3,000 British, Canadian, and American chemists should be sitting together at Columbia University, for they have been acting together for seven years. The chief feature of American chemical history after 1914 was the remarkable cooperation of American and Allied—especially British—chemists upon problems pertaining to munitions and other war essentials. They found themselves faced by a Germany which had built up its chemical industries by decades of shrewd effort. As Mr. Garvan said on Wednesday, the Germans had taken the discoveries of the British chemist Perkin—the Perkin Medal is one of our most prized scientific awards—and had made it the basis for a chemical technology unapproached elsewhere. Happily, we were able to build up some branches of industrial, agricultural, and electrical chemistry with a speed that surprised those who were unacquainted with our resourcefulness and our skill in research. By the end of 1915 the United States had the largest aniline plant in the world and was credited with nitric acid and nitro-cellulose plants three times greater than any others.

Not since Syracuse waited for the inventions of Archimedes to beat off the Romans has attention been concentrated upon science in war-time as Americans concentrated it upon chemistry after 1917. We had been shocked into a realization that we had depended upon Germany for medicines and dyes; that we had developed no independent potash resources; that we had done little with our Louisana sulphur; that we had looked to Chile for nitrates which we should have manufactured in part for ourselves, and that we had wasted the precious by-products we might

have gained from coking. The results of our awakening are shown in the newly issued summary of the 1920 census. In 1914 the United States had 754 establishments manufacturing chemicals, with products worth $200,195,800. In 1920 it had 1,374 establishments, with products worth $694,643,000. The increase in the value of the products in six years was 247 per cent. The manufacture of potash and potassium products was slightly more than twice as great—measured in value—as in 1914; that of acids about two and a half times as great; that of sodas and sodium almost three times as great, and that of coal tar products was $133,340,000, as against $8,839,000 in 1914, or about fifteen times as great.

Gratifying as this progress is, the complexity of some essential chemical industries, the careful adjustments they must establish with other industries, render more progress necessary before we are safe. Leaders in the coal-tar business, which are vital to national defence, declare that although we have far surpassed all other nations except Germany and Switzerland, we need five years yet to make our position impregnable. For the time being many of our drug-making and dye-making firms—we had 213 companies making these and other coal-tar products last year—have a right to complete tariff protection. The chemists at Columbia University have adopted resolutions asking for a "selective embargo." Any embargo needed in certain parts of this field can and should be provided by wise tariff legislation, and not, as some demand, by the arbitrary decrees of a licensing bureau.—*New York Evening Post.*

SPECIAL ARTICLES

TRIPLOID INTERSEXES IN DROSOPHILA MELANOGASTER[1]

In an experiment made to determine the locus of the new second-chromosome recessive mutant "brown" by means of a back-cross with the well-known second-chromosome recessives plexus and speck, one culture was found that produced a total of 96 females, 9 males, and about 80 individuals that were intermediates between males and females.

The "intersexes," which were easily distinguished from males and from females, were large-bodied, coarse-bristled flies with large roughish eyes and scolloped wing-margins. Sex-combs (a male character) were present on the tarsi of the fore-legs. The abdomen was intermediate between male and female in most characteristics. The external genitalia were preponderantly female. The gonads were typically rudimentary ovaries; and spermathecæ were present. Not infrequently one gonad was an ovary and the other a testis; or the same gonad might be mainly ovary with a testis budding from its side. The intersexes showed considerable variation, apparently forming a bimodal group—on the one hand a more "female-type," the extreme individuals of which might even lack sex-combs, and, on the other hand, a more "male-type," many of the individuals having large testes and normal male genitalia. All intersexes proved sterile.

Just as striking as the production of intersexes was the fact that the 96 females and 9 males of that same culture showed three, instead of two, large classes representing original combinations, namely, plexus speck, plexus brown, and brown speck. Extensive tests were made of these flies; and each was found to have received from the father a second-chromosome carrying plexus brown and speck, and to have received from the mother one of three different second-chromosomes, namely, a plexus brown, or a plexus speck, or a brown speck chromosome. That is, the mother of the intersexes had carried *three* second-chromosomes, instead of two. For each of the loci plexus, brown and speck she had carried two recessive genes for the mutant character and one wild-type allelomorph, with nearly complete dominance of the wild-type gene in each case.

A condition of triploidy for certain sections of chromosome had been met with in the previous (unpublished) studies on duplications and on translocation; but that this triploidy was far more extensive soon became evident.

[1] Paper read before the Pacific Division A. A. A. S., Univ. of Cal., Aug. 5, 1921.